DIY Project – Large Format Lens Infinitive Focal Length Finder

James R. Kyle, Photographer
Saint Louis, Missouri

When I first began building “sliding-box” cameras, I used my large format 8X10 Ansco Camera to find the infinitive focal distance of lenses that I might use. After building five of these cameras, I began publishing on my Facebook page so that other people interested in doing what I did, could do so. However. Without a camera to use as a “device” to find the infinitive focal distance of the lens chosen, the builder would have to hold the lens in one hand and sheet of waxed paper in the other. This left the need for an additional hand to take a measurement of the distance between the lens and the waxed paper. And too, the lens and the waxed paper must be held inline with each other. So - This method is not truly desirable for accuracy.

While lounging in the hammock a few months back (this is my place for thinking), I thought of a device to accomplish the correct, and stable, method - yet was very simple. It would only take a few scraps of wood, a frosted 8X10 sheet of ground glass, and some support for the lens in question (however - Movable from near to far).

I found what needed as a support base that was eleven inches wide, by fourteen inches long. I cut a few scraps of white pine, measured, to fit as a “center rail” - and an upright from which I cut a “V” that would support the lens. This part of the assembly would move along the center-rail, and a measurement could be taken for the focal distance for any lens that the builder desires to make a camera around.

(*When I began building my cameras - I knew that I needed four measurements. The Width and Height for the support of the film-holder, at the rear of the box where the film, focal plain is located. The “Camera-Bed” where the “sliding box” would move back and forth for focusing. And the most important = the “Infinitive focal distance”. (The infinitive distance is where the sliding-box camera would be closed, as anything closer, the photographer would Pull Back on the rear box to attain a clear image focused of any object that was nearer to the camera.*))

This will work well and good for determining of the distance of any lens for making a camera - Both sliding-box, as well as the “bellows-focusing” system, for 3X4, 4X5, 5X7, 8X10, and 16X20 inch camera formats. (Or - any lens from 4" to that of 14".)

I must excuse myself, and beg forgiveness for not including any “true plans” on the dimensions. However - I think that just about anyone can build this (or something better) from these photos I have taken after the build. (I had an after thought of doing an article about this just before I put it all together.

After assembling the Rear Box, where the “ground-glass” is positioned – (i.e. = Plexiglass Sheet 8"X10" == With Frosted Tape on one side, thus, will not break if dropped.) -- I glued this to the rear box. Then, I mounted the “sliding-rail” to the bed, and centered it. I Made up the support for the lens holder, and cut a “V” into the two support uprights, then put felt on the “V” so the lens would not suffer scratches.

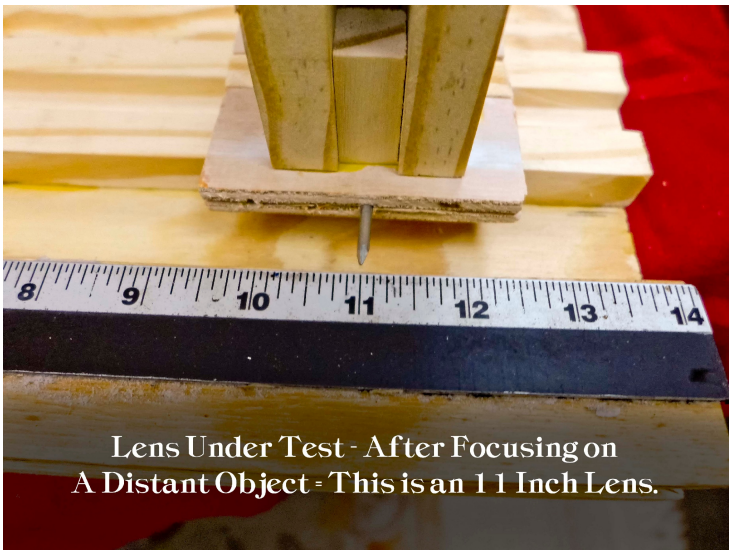
Flat-Bed - Silding Rail - And Lens Support Parts Glued Together

Lens Support Placed into the Slot for Moving In & Out

Unit Assembled and Ready for Mounting of A Lens

Mounted the Lens on The Movable Support

Finished, Lens Mounted - And Ready To Use



Operation -

The operation of this “Infinitive Focal Finder” is very simple and accurate, from which a large format camera may be built.

First - Place the lens on the movable cradle in the rear most position. Make sure that the “Nodal Point” of the lens (where the f-Stops are located) is inline with the “Pointer”.

Second - Choose a distant object (200 to 300 feet of distance) - A building - A row of trees, anything that has sharp district lines.

Third - Cover the top area between the lens and the Focal Plane box with a dark cloth, that will cover your head - up to the front of the lens. (Do NOT obscure the front of the lens nor the “light path” to the focal plane).

Fourth - Slide the cradle and lens forward, till the image displayed on the focal plane is as sharp as you can see.

Fifth - Remove the dark cloth without moving the cradle, and read the number indication of the pointer and it’s indication on the ruler. >> This will be the Infinitive Distance for this particular lens under test.

I do not plan to stain, or paint the wood - as it will only be used for the strict purpose of determining a “Lens Infinitive Distance” for cameras that I intend to build. It is NOT a “show piece”. I know - all who will read this and see the construction of it, will indeed see the photos. OK - fine... When - or IF - anyone wishes to build something like this and they wish to paint or stain it, that is their business. For me - this is just as practical as it gets - and it works. I kept it simple - as it is only a tool to achieve what it was designed to do.

February, 2020 - James R. Kyle – Thank you for reading.